

REMARKS

I. Introduction

The final Office Action of June 23, 2010 has been reviewed and the Examiner's comments carefully considered. Claims 1-78 were pending in this application. The present Amendment amends claim 1 in accordance with the originally-filed specification. No new matter has been added by this Amendment. The present Amendment also cancels claim 30. Additionally, claims 35-78 were withdrawn from further consideration in view of an earlier restriction requirement. The Applicants reserve the right to file a divisional application directed to the non-elected claims. Accordingly, claims 1-21, 23-29, and 31-33 are currently under examination in this application, and claims 1, 32, and 33 are in independent form.

II. 35 U.S.C. § 103 Rejections

Claims 1-6, 8, 13, 16-21, and 23-33 stand rejected under 35 U.S.C. § 103(a) for obviousness based upon United States Patent No. 5,401,799 to Kohlhepp et al. (hereinafter "the Kohlhepp patent") in view of United States Patent No. 5,889,102 to Haack et al. (hereinafter "the Haack patent"). In view of the above amendments and the following remarks, the Applicants respectfully request reconsideration of this rejection.

As defined by amended independent claim 1, the present invention is directed to an extrudable resin composition that includes: a high temperature engineering thermoplastic compounded with an external lubricant, a polymeric lubricant, and one or more of a reinforcement component and an enhancing filler component. The extrudable resin composition is thermally stable at temperatures of up to about 427°C. The high temperature engineering thermoplastic is one or more selected from the group consisting of polyarylketones, chemical resistant polysulfones (PSU), polyphenyl sulfones (PPSu), polyether sulfones (PES), polyolefins, and polyarylene sulfides. The external lubricant is one or more selected from the group consisting of fatty acids and their corresponding amides, esters, and salts; and organic phosphate esters. The polymeric lubricant comprises a fluoropolymer.

As defined by independent claim 32, the present invention is also directed to an extrudable resin composition that includes: 50 to 99.9 wt. % of a high temperature engineering thermoplastic consisting of one or more polyphenylene sulfides; 0.1 to 40 wt. % of a reinforcement component consisting of glass fiber; 0.01 to 10 wt. % of an enhancing filler component consisting of titanium dioxide; 0.001 to 5 wt. % of a polymeric lubricant consisting of polytetrafluoroethylene; and 0.001 to 2 wt. % of an external lubricant selected from the group consisting of calcium stearate, zinc stearate, palmitic acid amides, stearic acid amides, oleic acid amides, and N,N'-ethylenebisstearamide. The extrudable resin composition maintains its form and function at temperatures up to about 232°C, and the high temperature engineering thermoplastic has a heat deflection temperature higher than about 121°C.

As defined by independent claim 33, the present invention is an extrudable resin composition that includes: 50 to 99.9 wt. % of a high temperature engineering thermoplastic consisting of one or more polyphenylene sulfides; 15 to 25 wt. % of an enhancing filler component consisting of mineral oxide; 0 to 5 wt. % of a polymeric lubricant consisting of polytetrafluoroethylene; and 0.001 to 2 wt. % of an external lubricant selected from the group consisting of calcium stearate, zinc stearate, palmitic acid amides, stearic acid amides, oleic acid amides, and N,N'-ethylenebisstearamide. The extrudable resin composition maintains its form and function at temperatures up to about 232°C, and the high temperature engineering thermoplastic has a heat deflection temperature higher than about 121°C.

The Examiner alleges that the Kohlhepp patent is directed to a thermoplastic molding composition comprising: (a) from 20 to 70% by weight of polyphenylene sulfide; (b) from 5 to 20% by weight of ultrahigh-molecular-weight polyethylene; (c) from 10 to 40% by weight of a fibrous reinforcing agent; (d) from 10 to 40% by weight of an inorganic filler; and (e) from 0 to 1% by weight of a lubricant and/or other additives used to produce moldings, fibers, and films.

Independent claims 1, 32, and 33 each require the high temperature engineering thermoplastic to be compounded with an external lubricant that is one or more selected from the group consisting of fatty acids and their corresponding amides, esters, and salts; and organic phosphate esters *and* a polymeric lubricant that comprises a fluoropolymer. The Kohlhepp

patent, whether considered alone or in combination with the Haack patent, does not teach or suggest that the extrudable resin composition includes a high temperature engineering thermoplastic that is compounded with an external lubricant *and* a polymeric lubricant that comprises a fluoropolymer as required by independent claims 1, 32, and 33. While the Haack patent discloses a long list of materials, including fluoropolymers, that may be used as lubricants (*see* column 1, lines 31-50), there is no teaching or suggestion to replace the ultrahigh-molecular-weight polyethylene that is used as a polymeric lubricant in the Kohlhepp patent with the fluoropolymer described in the Haack patent.

In response to the argument that the Haack patent contains no teaching or suggestion to replace the ultrahigh molecular weight polyethylene (UHMW-PE) lubricant of the Kohlhepp patent with the fluoropolymer of the Haack patent, the Examiner notes that the Kohlhepp patent teaches at col. 1, lines 32-37 that JP-A 61-040357 discloses treating polyphenylene sulfide with PTFE and UHMW-PE. Therefore, the Examiner concludes, that the Kohlhepp patent provides motivation to add a fluoropolymer to the resin composition.

However, independent claim 1 has been amended to restrict the external lubricant to one or more selected from the group consisting of fatty acids and their corresponding amides, esters, and salts; and organic phosphate esters. Accordingly, independent claim 1 does not include a hydrocarbon wax lubricant, such as UHMW-PE, which is required by the Kohlhepp patent and which is disclosed as the preferred lubricant by the Haack patent.

To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. Where claimed limitations are simply not present in the prior art, a *prima facie* obviousness rejection is not supported. Accordingly, since the Kohlhepp patent, whether considered alone or in combination with the Haack patent, fails to teach or suggest that the extrudable resin composition includes a high temperature engineering thermoplastic that is compounded with an external lubricant *and* a polymeric lubricant that comprises a fluoropolymer as required by independent claims 1, 32, and 33, a *prima facie* case of obviousness has not been established.

For the foregoing reasons, the Applicants believe that the subject matter of independent claims 1, 32, and 33 is not obvious in view of the combination of the Kohlhepp

patent and the Haack patent. Reconsideration and withdrawal of the rejection of claims 1, 32, and 33 are respectfully requested.

Claims 2-6, 8, 13, 16-21, 23-29, and 31 depend from and add further limitations to amended independent claim 1 or a subsequent dependent claim and are believed to be patentable for at least the reasons discussed hereinabove in connection with independent claim 1. Reconsideration and withdrawal of the rejection of claims 2-6, 8, 13, 16-21, and 23-31 are respectfully requested.

Claims 7, 9-12, 14, and 15 stand rejected under 35 U.S.C. §103(a) for obviousness over the Kohlhepp patent in view of the Haack patent and United States Patent No. 6,013,719 to Lahijani (hereinafter "the Lahijani patent"). In view of the above amendments and the following remarks, the Applicants respectfully request reconsideration of this rejection.

Claims 7, 9-12, 14, and 15 depend from and add further limitations to amended independent claim 1 or a subsequent dependent claim. The combination of the Kohlhepp patent and the Haack patent was discussed hereinabove in connection with amended independent claim 1. The Lahijani patent is directed to a low melt viscosity polytetrafluorethylene (PTFE) and is provided by the Examiner as allegedly disclosing that the polyarylene ether ketones provide the highest thermal stability of the thermoplastics. The Lahijani patent does not cure the deficiencies of the combination of the Kohlhepp patent and the Haack patent. Therefore, claims 7, 9-12, 14, and 15 are believed to be patentable for the reasons discussed hereinabove in connection with amended independent claim 1. Reconsideration and withdrawal of the rejection of claims 7, 9-12, 14, and 15 are respectfully requested.


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III. Conclusion

Based on the foregoing amendments and remarks, reconsideration of the rejections and allowance of pending claims 1-21, 23-29, and 31-33 are respectfully requested. Should the Examiner have any questions or wish to discuss the application in further detail, the Examiner is invited to contact Applicants' undersigned representative by telephone at 412-471-8815.

Respectfully submitted,

THE WEBB LAW FIRM

By 

Ryan J. Miller
Registration No. 56,236
Attorney for Applicants
436 Seventh Avenue
700 Koppers Building
Pittsburgh, PA 15219
Telephone: (412) 471-8815
Facsimile: (412) 471-4094
E-mail: webblaw@webblaw.com